

Good
VACATION
SNAPS —
SHOTS —
— HOW — TO GET THEM



25^c





All by Ewing Galloway, N.Y.

You Can Make Pictures Like These

THE camera is not the mysterious, difficult to operate instrument that many suppose. It is simply a machine designed to take pictures, and as is true for all machines the operator must be able to recognize its various parts and understand what they do in making the whole thing work. We shall show in the first few pages that follow that such an understanding is easily and quickly attained, for the camera is essentially a very simple machine.

An automobile, for example, is much more complicated to operate. Imagine how confused you would be if you were to step into a car for the first time, unable to recognize which part was the clutch, the brake, the gear shift, the choke, the ignition, etc. Few people would be so foolhardy as to try to drive under such circumstances, and yet many people attempt to take pictures without knowing one end of the camera from the other. Is it any wonder that they do not get good results?

This little booklet doesn't try to persuade you to make hard work out of your photography. It is written for those who want to snap their pictures as quickly and as painlessly as possible and go on with their fun.

You can do just that and still get surprisingly good results, by simply remembering the few dos and don'ts which are given in the following pages.

With these points in mind you can be sure of good technical results, that is, pictures which are sharp, clear, and brilliant. But we have also included here many helpful pointers on how to make your pictures more interesting and attractive.

Pictures become interesting when they tell their story clearly and well. Bad backgrounds, bad lighting, bad posing, bad camera angles, and too much camera consciousness on the part of your subject, are just a few of the things which can spoil the story-telling quality of your pictures. It is really quite easy to learn to avoid such things, and when you do avoid them you will be astounded at how much more exciting and satisfying your pictures will be.

There is one other important factor in picture making. It has to do with the use of imagination and originality in selecting your subject matter, your lighting, your camera angles, etc. Under ordinary frontal lighting the shot of the sailboat (above) would be just another picture. But, by shooting toward the sun in the late afternoon, the photographer has obtained a striking thing. In various other ways each of the pictures on this page have been made interesting and attractive.

You can do exactly as well by simply learning a few easy "tricks of the trade," described in the following pages. So cast off the mistaken idea that good photographs are difficult to make. Spend an hour reading this booklet and a few rolls of film practicing what you learn. We know you will be delighted with the result.

[1]

By Ewing Galloway, N.Y.

Sheckell, Black Star

By Ewing Galloway, N.Y.

Black Star



19 1937

Good Vacation Snapshots How to Get Them

By George Allen Young



Black Star



By Ewing Galloway, N.Y.



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P. Douglas Anderson, F.R.P.S.*

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Your Camera

There is no point in boring and confusing the reader with any attempt to describe in minute fashion the many types and makes of cameras which are on the market today. All that is necessary is that the reader should clearly understand what kind of a camera he now owns. As we go along we will point out exactly what each kind of camera can and cannot do. That is the important thing to know about any camera.

On this page we want to arrive at as simple a classification of cameras as possible. To that end we show the principal types of cameras available. By looking at these illustrations and then referring to the list of cameras given on the following page, you can easily determine which kind of camera you have. But, as we have said, the important thing is to determine whether you have a camera that is capable of taking any and every kind of picture, or whether there are certain kinds of pictures which your camera cannot take.

The versatility of any camera is determined by two things. The "speed" of the lens, and the range of shutter speeds which the camera has. We will shortly explain just what is meant by lens and shutter speeds, but for the moment the point is this: If you have a box or fixed-focus folding camera, or a focusing scale folding camera whose fastest shutter speed is 1/100th sec. or less, and whose largest lens opening is F:11 or less, you must operate in accordance with the following rules: 1. Take snapshots only in bright sunlight. 2. Never take pictures of moving objects. 3. With box or fixed-focus cameras do not photograph anything closer than 10 feet from the camera. 4. With folding focusing scale cameras never photograph anything closer than the shortest distance marked on the focusing scale.

If your camera has a maximum lens opening of F:4.5 or larger and shutter speeds up to 1/500th second you can be sure that there is virtually nothing which you cannot photograph, once you have learned to adjust and handle your camera properly.

There is a large group of cameras which lie in between the two groups mentioned above. They have shutter speeds up to 1/200th or 1/300th of a second, and maximum lens opening of F:6.3, or F:4.5. Just what can and cannot be done with cameras of this range will become clear in the pages to follow.

In the list below the name of the camera is given in the first column. Most cameras will have their name either engraved on some metal part of the camera or embossed on the leather covering. The name occurs in such a variety of places that it is impossible to give details of its location here. In the second column the "F" value of the largest lens opening is listed. This is an indication of the "speed" of the lens. If only one number is given that means that no way is provided for altering the lens open-

[3]



Auto-focusing



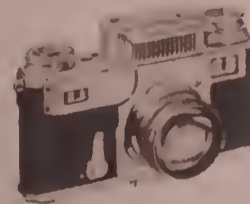
Zeiss Ikon CAMERAS WITH ZEISS LENSES



SUPER IKONTA A
Takes 16 pictures 1 5/8" x 2 1/4". Zeiss Tessar F/3.5 lens. Compur shutter 1-1/500th second, T. & B.



SUPER IKONTA B
Takes pictures 2 1/4" x 2 1/4". Choice of Zeiss Tessar F/2.5 or F/3.5 Compur shutter with speeds 1-1/400th second, T. & B.



CONTAX III
Takes 36 pictures 1 1/2" x 1" on standard 35mm. film. Photo-electric exposure meter. Focal plane shutter speeds to 1-1250th second. 14 interchangeable Zeiss lenses.

Equipped with super-imposed image range-finder and Carl Zeiss lenses, these precision cameras permit needle-sharp focusing and assure brilliant negatives. There are nine auto-focusing models: 4 Super Ikonta, 3 Contax, the Super Nettel, and Nettax.

SUPER IKONTA MODELS are foremost among roll-film cameras. Fitted with Zeiss Tessar lens and dependable Compur shutter. Lens speeds from F/2.8 to F/4.5 and negative sizes from 1 5/8" x 2 1/4" to 2 1/2" x 4 1/4".

CONTAX IS THE UNIVERSAL CAMERA. Accommodating as it does 14 interchangeable Zeiss lenses of varying focal lengths, it can be easily and quickly adapted to any phase of photography. The Contax III has a built-in photoelectric exposure meter.

25 MODELS TO CHOOSE FROM. Simple roll-film cameras, auto-focusing models, reflex types, plate and film-pack cameras. Whatever your requirements you will find a Zeiss Ikon model to suit your purse and purpose. See them at your dealer's. Write for catalog.

ing. If two or three numbers are given that means that the lens can be set for each of those lens openings. If a single number is given followed by the word "iris," that means that the lens is constructed with an iris diaphragm and can be set for any lens opening smaller than the one indicated by the number. "T" and "B" indicate Time and Bulb which will be explained later. If only one number appears it means that the shutter is constructed to operate at only that shutter speed and no other. If there are two numbers with a dash between, that shutter will give the two exposures indicated plus a range of exposures in between those two.

The fourth column contains the designations used by the Eastman Kodak Company and the Agfa Ansco Corporation to indicate the film sizes used by each camera.

Box Cameras

	Maximum Lens Opening "F" Number	Shutter Speeds	Film Size Used	
			Eastman	Agfa
Baby Brownie	15	1/25	127	A8
620 Brownie Jr.	14 & 20	T 1/25	620	PB20
620 Brownie	12.5 & 18	T 1/25	620	PB20
616 Brownie Jr.	14 & 20	T 1/25	616	PD6
616 Brownie	12.5 & 18	T 1/25	616	PD6
Cadet Spec.	14	1/25	127	A8
Cadet 20	14	1/25	120	B2
Cadet 16	14	1/25	116	D6
Sure Shot Reg.	15	T 1/25	120	B2
Sure Shot Spec.	15	T 1/25	120	B2
Sure Shot Reg.	15	T 1/25	116	D6

Fix-Focus Folding Cameras

Bullet	15	1/25	127	A8
VP Jiffy	11 & 16	B 1/25	127	A8
620 Kodak Jr.	11-16-22	T 1/25	620	PB20
Ready Set 20	14	T 1/25	120	B2
Ready Set 16	14	T 1/25	116	D6
Plenax	14 Iris	T 1/25	116	D6
Plenax	14 "	T 1/25	120	B2

Focusing Scale Cameras

620 Jiffy	11-16-22	T 1/25	620	PB20
620 Kodak Jr.	11 Iris	T & B 1/25-1/100	620	PB20
620 Kodak Jr.	6.3 "	T & B 1/25-1/100	620	PB20
620 Kodak	6.3 "	T & B 1/25-1/100	620	PB20
620 Kodak	4.5 "	T & B 1-1/250	620	PB20
Plenax 20	11 "	T 1/25-1/100	120	B20
Plenax 20	6.3 "	T 1/25-1/100	120	B20
Ikonta C	6.3 "	T & B 1/25-1/100	120	B20
Ikonta C Spec.	4.5 "	T & B 1-1/250	120	B20
Brilliant	4.5 "	T & B 1-1/300	120	B20
616 Jiffy	11-16-22	T 1/25	616	PD6
616 Kodak Jr.	11 Iris	T & B 1/25-1/100	616	PD6
616 Kodak Jr.	6.3 "	T & B 1/25-1/100	616	PD6
616 Kodak	11 "	T & B 1/25-1/100	616	PD6
616 Kodak	6.3 "	T & B 1/25-1/100	616	PD6



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728 So. Hill Street, Los Angeles



	Maximum Lens Opening "F" Number	Shutter Speeds	Film Size Used	
			Eastman	Agfa
616 Kodak	4.5 "	T & B 1-1/250	616	PD6
Plenax 16	11 "	T & B 1/25-1/100	116	D6
Plenax 16	6.3 "	T & B 1/25-1/100	116	D6
Ikonta D	6.3 "	T & B 1/25-1/100	116	D6
Ikonta D Spec.	4.5 "	T & B 1-1/200	116	D6
3A Kodak	6.3 "	T 1/10-1/100	122	G6
Recomar 18	4.5 "	T & B 1-1/250	Pack 520	20
Maximar A	4.5 "	T & B 1-1/250	Pack 520	20
Ideal A	4.5 "	T & B 1-1/250	Pack 520	20
Recomar 33	4.5 "	T & B 1-1/200	Pack 541	41
Maximar B	4.5 "	T & B 1-1/200	Pack 541	41
Ideal B	4.5 "	T & B 1-1/200	Pack 541	41
Super Ikonta A	3.5 "	T & B 1-1/500	120	B2
Super Baldax	2.9 "	T & B 1-1/400	120	B2
Super Baldax	2.9 "	T & B 1-1/400	120	B2
Super Ikonta B	2.8 "	T & B 1-1/400	120	B2
Super Ikonta C	4.5 "	T & B 1-1/400	120	B2
Super Ikonta D	4.5 "	T & B 1-1/250	116	D6

Fixed-Focus Miniature Cameras

Bantam	11	1/25	828
Bantam	6.3 & 11	T 1/25	828

Focusing Scale Miniature Cameras

Argus	4.5 Iris	T & B 1/25-1/200	135	Leica Type
Marvel	4.5 "	T & B 1/25-1/100	135	"
Baldina	2.9 "	T & B 1-1/500	135	"
Weltina	2.8 "	T & B 1-1/500	135	"
Retina	3.5 "	T & B 1-1/500	135	"
Leica E	3.5 "	B 1/20-1/500 F.P.	135	"
Robot	2.8 "	B 1/2-1/500	Special	
Vollenda	3.5 "	T & B 1-1/500	127	A8
Baby Ikonta	3.5 "	T & B 1-1/500	127	A8
Foth Derby 3.5 or 2.5	"	B 1/25-1/500 F.P.	127	A8
620 Duo	3.5 "	T & B 1-1/500	620	PB20
Ikonta A	4.5 "	T & B 1/25-1/100	120	B2
Ikonta A	3.5 "	T & B 1-1/500	120	B2

	Maximum Lens Opening "F" Number	Shutter Speeds	Film Size Used	
			Eastman	Agfa
Baldax	2.9 "	T & B 1-1/500	120	B2
Welti	2.8 "	T & B 1-1/500	120	B2

Miniature Cameras with Range Finder Geared to Lens

Super Weltina	2.8 Iris	T & B 1-1/500	135	Leica Type
Super Baldina	2.9 "	T & B 1-1/500	135	"
Leica D	Several	B 1/20-1/500 F.P.	135	"
Leica F	Several	T & B 1-1/500 F.P.	135	"
Leica G	Several	T & B 1-1/1000 F.P.	135	"
Super Nettel	2.8 Iris	B 1/5-1/1000 F.P.	235	Contax Type
Nettax	2.8 "	B 1/5-1/1000 F.P.	235	"
Contax II	Several	B 1/2-1/1250 F.P.	235	"
Contax III	Several	B 1/2-1/1250 F.P.	235	"
Bantam Special	2 Iris	T & B 1-1/500	828	
Super Ikonta	3.5 "	T & B 1-1/500	120	B2
Super Baldina	2.9 "	T & B 1-1/500	120	B2
Super Weltina	2.8 "	T & B 1-1/500	120	B2

Single Lens Reflecting Cameras

National Graflex	3.5 Iris	B 1/25-1/500 F.P.	120	B2
Noviflex	2.9 "	B 1/25-1/500 F.P.	120	B2
Primaflex	2.7 "	T & B 1-1/1000 F.P.	120	B2
Korelle	2.8 "	B 1/25-1/500 F.P.	120	B2
Graflex	Various	T 1/10-1/1000 F.P.	Various	
Speed Graphic	Several	T 1/10-1/1000 F.P.	Various	
Exakta	2.8 or 2 Iris	T & B 6-1/500 F.P.	127	A8

Twin Lens Reflecting Cameras

Rolleiflex	3.5 Iris	T & B 1-1/500	120	B2
Rolleicord	3.5 "	T & B 1-1/500	120	B2
Ikoflex I	4.5 "	T & B 1/25-1/100	120	B2
Ikoflex II	3.5 "	T & B 1-1/500	120	B2
Fothflex	3.5 "	B 2-1/500 F.P.	120	B2
Superb	3.5 "	T & B 1-1/250	120	B2
Contaflex	1.5 "	B 1/2-1/1000 F.P.	235	Contax

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and the Leica go hand in hand. Wherever you go, and whatever you do, keep a Leica with you so that it will be ever ready to capture the fleeting scene. The crack of a bat on a ball, a diver in mid air, a thoroughbred thundering down the home stretch—nothing is too fast for the Leica. Use this camera and you will make vacation snapshots such as you never before dreamed possible.

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Model G with F:2 Summar Speed lens

The Original Miniature Candid Camera

Leica Photo
By Ivan Dmitri



Camera Adjustments

Something of the imaginary complications of the camera are immediately dispelled by the statement that even the most elaborate cameras require only three adjustments. These adjustments are:

1. Set the shutter speed.
2. Set the lens opening.
3. Focus.

That is all that is required, and the intelligent handling of the camera depends entirely upon learning how and why to make these three adjustments. The simplest kinds of cameras eliminate even these three adjustments, but at the cost of drastically limiting the variety of pictures which can be taken, as we have learned.

THE SHUTTER. The shutter is a mechanism which opens when the shutter release is pressed, thus permitting light from the object being photographed to reach the film, and then closes again. It is constructed so that it can be set to perform this action in a definite time interval. Thus we see that the shutter regulates the **length of time** that the light may act on the film. It is necessary to control this length of time for two reasons. First, this time must be short enough so that no movement occurs in the object being photographed during the time the shutter is open. If the subject moves or if the camera is moved while the shutter is open a blurred picture will result. Imagine, for instance, that you are taking a picture of a man while he is raising his hand from his waist to his head. If your shutter is open all the while the action is taking place your film will obviously receive a weak picture of the hand at each stage of the movement so that the hand will be blurred, even though the rest of the picture may be sharp and clear.

Second, the length of time the shutter is open will control the **amount of light** reaching the film. It is self-evident that twice as much light will reach the film in one second as in one-half second. The **amount of light** reaching the film must be controlled in order to insure proper exposure. The reasons for this will be made clear when we take up the subject of exposure. We will also shortly see that the lens opening also helps to control the **amount of light** reaching the film.

We see, then, that the primary function of the shutter is to control the **length of time** that light is allowed to reach the film, so that this time may be short enough to prevent blurring of the picture due to movement of object or camera. And that it also functions in conjunction with the lens opening to regulate the **amount of light** reaching the film.

There are two kinds of shutters in general use today. These are known as the Between-the-Lens shutter and the Focal Plane shutter. The names of the shutters refer to their position in the camera. The first named consists of a series of thin overlapping metal leaves. When the shutter is snapped these leaves spring apart and then close again in the length of time for which the shutter has been set. (See two uppermost illustrations on facing page.) The Focal Plane shutter is located just in front of the focal plane of the camera. This is the plane at which the lens brings the image to a focus, that is, it is the position in which the film is held. This shutter consists of a curtain with slits of varying sizes. When an exposure is made the slit is drawn across the face of the film, allowing it to be exposed to light. By using larger or smaller slits, and by drawing the curtain fast or slow, varying amounts of exposure can be given.

The illustration on this page shows cameras equipped with a simple and an elaborate between-the-lens shutter. White arrows point to the shutter settings so the shutter settings can be easily recognized. To set your camera for any desired shutter speed all you need do is to move the pointer or turn the flange, as the case may be, until the desired number indicating the shutter speed is opposite the marker. For example, the camera at the left is now set for an exposure of 1/100th of a second, the one at the right for 1/25th of a second. B and T stand for Bulb and Time. These are only used when a very long exposure is required, and must never be used unless the camera is on a tripod or other solid support. When the shutter is set for Bulb it will remain open as long as pressure is kept on the shutter release, and will close as soon as pressure is withdrawn. When the shutter is set for Time it will open at the first pressure on the shutter release and remain open until a second pressure is applied. Pressure on the shutter release must be withdrawn before a second pressure can be applied.



The Lens Opening

What F Numbers Mean

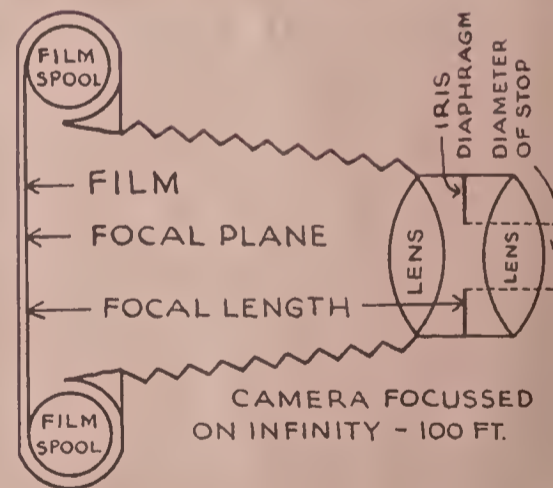
The device which makes it possible to control the size of the lens opening is known as an iris diaphragm. The two uppermost illustrations show a shutter and lens assembly with the lens removed so that the iris diaphragm is visible. Notice that in the top picture the diaphragm is almost wide open while in the picture just below it is almost closed. The size of the opening in the iris diaphragm is set by moving a pointer or by turning a flange. The third illustration from the top shows these settings on typical modern cameras with white arrows pointing to the lens settings. Notice that the camera on the left is set at F:11, the other at F:22.

The opening in the diaphragm is commonly referred to as the "aperture" or the "stop." Thus a photographer will say that he gave an exposure of 1/25th of a second at stop F:8, meaning that the shutter speed was 1/25th of a second, and the iris diaphragm was set at the point marked F:8. What is the meaning of these "F" numbers?

First let us get clearly in mind that the iris diaphragm is placed in the lens so that we can control the **amount** of light which passes through the lens to the film. If the sun is bright we use a small stop, so that the film will not get too much exposure; if the sunlight is weak, we use a larger stop and therefore permit more but weaker light to reach the film to insure enough exposure. Quite obviously we must have some means of knowing the exposure value of the amount of light we are letting through—the system of "F" markings gives us that information. Because light diminishes in intensity as it travels, we must take into account the distance from lens to film in calculating the exposure value, or the light passing power of any stop. Now the distance which the light must travel from lens to film is determined by the focal length of the lens. This is the distance from the middle of the lens to the focal plane (position in which the film is held) when the lens is focused on an object 100 feet or more distant. At such a focus the lens is as close to the film as it can be and still produce a sharp image. The position and relation of each of these factors is shown diagrammatically in the drawing at the right. The actual exposure value or light passing power of any given aperture is therefore determined by the relation of the size of the lens opening to the focal length of the lens. It is this relation which is expressed by the "F" numbers. That is, the "F" numbers are arrived at by dividing the focal length of the lens by the diameter of the lens opening. Further, it should be understood that the same "F" number will always give identical exposure value (light conditions remaining the same) regardless of the size of the lens. For example, suppose we have a very big lens with a focal length of 16 inches and an aperture of 4 inches, and a small lens with a focal length of 2 inches and an aperture of 1/2 inch. Dividing the focal length by the diameter of the aperture, we have in the case of the big lens $16 \div 4$, which equals 4, and in the case of the small lens, $2 \div 1/2$, which also equals 4, so we see that both of these lenses when set to the aperture indicated have a speed of F:4 in spite of the great difference in their size.

We still must explain how much the exposure is altered when we change from one stop to another, and what the relation is between shutter speeds and lens apertures. These matters will be discussed when we take up the subject of exposure.

The simplest box cameras have no means of altering the lens aperture. Those with such an adjustment have a strip of metal with two or three holes of different size along its length. When the bar is pushed all the way down into the camera, the largest opening is in front of the lens. To bring the smaller openings in front of the lens the strip of metal is pulled outward as in the lower illustration to the right.



Perform This Experiment

We have now discussed the function of the shutter and the iris diaphragm. To fix the action and relation of these two parts of the camera clearly in mind, perform the following experiment. Remove the back from your camera and set it on some solid object such as a table so that the lens is pointing at a window. Then take a position so that you can look from the back of the camera through the lens, just as is being done in the illustration at the left. Set your shutter at various speeds and make exposures. You can then see exactly what the shutter does when an exposure is made, and will get a clear idea of how very quickly it operates. Then set your shutter on time and press the shutter release so that the shutter opens and remains open. Now move the lever or flange which sets the diaphragm opening. Set it first to the largest opening and then to the smallest opening, noting the change each time by looking through the back of the camera. Notice also how much more light comes through the lens with a larger opening than with a small one. Play around with these settings until you are sure that their every detail is perfectly clear in your mind.



Depth of Focus

Aside from regulating the volume of light passing through the lens, the size of the aperture (F number) used has one other effect. It regulates the depth of focus which will be obtained in the finished picture. When we say a picture has a great depth of focus, we mean that objects close to the camera and objects far away from the camera are both in sharp focus. The picture on the right below has great depth of focus. Notice that the cards placed at 10, 15, 25, 50 and 75 feet from the camera are all in sharp focus, even the fence beyond is also sharp. The picture at the left below has much less depth of focus. Only the cards placed at 15 and 25 feet from the camera are sharp, all the others being blurred because they are out of focus. Notice that the picture at the right with great depth of focus was taken at aperture F:32, and that the picture at the left with little depth of focus was taken at F:4.5. We can see, therefore, that the smaller the aperture used (larger F numbers) the greater the depth of focus. The larger the aperture used (smaller F numbers) the less the depth of focus. Therefore, if you wish to obtain as much depth of focus as possible, set your lens to the smallest aperture (largest F number) which your lens has. Of course it is not always possible to use the smallest aperture for if the light is not bright, or if the subject is in motion so that you have to use a fast shutter speed you may not be able to obtain enough exposure at the small aperture. This question will be fully discussed under exposure. In general the photographer should try to obtain as much depth of focus as possible so that his picture will be sharp and clean cut in all its parts. However, in pictures in which one object is all important, such as is the case with portraits, it is often advisable to work for less depth of focus so that backgrounds will be out of focus. The figure will then have more prominence because it is the only object in the picture in sharp focus.

[8]

F:4.5.



F:11



F:32



Focusing

There is nothing much more annoying than to have some picture which you looked forward to seeing with keen anticipation, return from the finishers looking like the one to the right—out of focus. Such an error is due solely to carelessness or a lack of familiarity with the handling of the camera. It is best avoided by practicing with your camera until the proper setting of it becomes automatic—just like driving an auto. A good way to check up on yourself is to memorize the fact that there are three camera adjustments which must be made. 1. Set the shutter. 2. Set the lens. 3. Focus. Recite these quickly in your mind before shooting and many a much desired picture will be saved.

As we have stated before, box cameras and fixed-focus folding cameras require no focusing. If you obtain an out-of-focus picture with such a camera it is because the camera was used too close to the subject. Remember such cameras cannot be used closer than 10 feet. Some of the more recent box cameras have a lever or snap on the front of the camera which, when switched to the side marked 5 ft., permits taking pictures at that distance.



There are four principal types of focusing arrangements. These are known as the focusing scale, the focusing lens mount, ground glass focusing, and range finder focusing. The first two named are really different forms of the same thing. The photographer estimates the distance from camera to object and then sets a pointer on a scale so that the pointer points to the proper number of feet (see Fig. 1). In the second type of focusing the adjustment is the same except that the scale is engraved on the lens barrel and the setting is made by revolving the lens barrel until the appropriate figures are in position (see Fig. 2). In cameras with ground glass focusing the image of the object being photographed is seen in the same size as the final picture will be on the ground glass which is located at the base of the focusing hood (see Fig. 3). The photographer simply moves the lens in and out until the image on the ground glass is sharp. This type of focusing has the advantage of permitting the photographer to actually see how much depth of focus he is getting in his picture. In range finder focusing one looks through a viewer such as is shown in Fig. 4. If the camera is out-of-focus two images are visible, one slightly to one side of the other. The focusing adjustment is turned one way or the other until these two images coincide. When they do the camera is in focus. This method of focusing is perhaps the most accurate of all for hand held cameras.

There still remains the question of what to focus on. In all pictures of people or animals focus on the eyes. In landscapes, architectural views, street scenes, etc., focus on the object which is to be the center of interest in your picture. A full discussion of what is meant by "center of interest" will be found in the section on Composition.

[9]

Focusing Scale



Focusing Lens Mount



Ground Glass Focusing



Range Finder Focusing



Exposure

Why and How

It is of first importance for the photographer to have a clear understanding of just what takes place when a film is exposed in a camera, for without that knowledge it is difficult for him to intelligently judge what exposure to give.

The total amount of effective exposure received by the film is controlled by three main factors: the brightness of the object, the size of the lens aperture (F number used), and the time of exposure (shutter speed). When the light sensitive film is exposed to light and then processed, it turns dark in exact proportion to the amount of exposure received. The more exposure the darker it gets, the less exposure the lighter it remains.

With these points in mind think of the film as a series of 100 extremely thin layers of light sensitive material laid one on top of the other.

Imagine that we are photographing a grey card on which there is a spot that is almost pure white and another that is almost pure black. The card, therefore, stands as a simplified equivalent of all the pictures we might take.

For the sake of simplicity, we assume also that the white spot on the card is 100 times brighter than the black spot and that the grey of the card is just in between, being half as bright as the white spot but twice as bright as the black spot. We set up a camera and give 100 units of exposure for this simplified picture. We use the term units of exposure because the brightness of the illumination on the card is not specified. If the card were brightly illuminated the unit of exposure would be very short, say 1/500th second, in which case the total exposure time would be 1/5th second. If the illumination is weak the unit of exposure might be large, say 1 second, in which case the total exposure would be 100 seconds.

What happens? The white spot being 100 times brighter than the black one will affect 100 of the imaginary layers in the film, while for the same reason the black spot will affect but one layer. The grey card being in between will affect 50 layers. That is what happens when the exposure is correct. When this film is laid on a piece of photographic paper and printed by shining a light through the film onto the paper, the dark portion of the film which corresponds to the white spot on the card will hold back the light so that only a very slight exposure will reach the paper. The light part of the film, corresponding to the black spot on the card, will let the light through. Therefore the paper will receive 100 units of exposure for the black spot and 1 unit of exposure for the white spot, and we will have a technically perfect print with the black spot 100 times darker than the white spot just as it was in the original subject.

Now let us see what happens if we over-expose. If we give 5 times as much exposure as before, that is 500 units, the white spot would then be able to affect 500 layers in the film. But since there are only 100 layers to be affected that is all it can do and the action stops there. The black spot will affect 5 times as many layers as before or 5 layers. But look what happens in the case of the grey tone. This will be able to affect 5 times as many layers as before. This is 50×5 or 250 layers. But since there are only 100 layers to be affected, this also stops acting after 100 layers have been affected. But notice that both the white spot and the grey of the card have affected the maximum of 100 layers. Consequently, they will be equally dark on the film. Therefore, when we come to make a print from this film the portions in the film corresponding to the white spot and the grey of the card will both hold back an equal amount of light. Thus it will be impossible to get a different amount of exposure on the photographic paper for the white spot and the grey of the card, and these two will therefore appear as the same tone in the print. Thus we see that over-exposure results in a loss of detail in the brighter portions of the picture.

Let us see what happens if we under-expose. We will now give 1/5th of the original exposure, or 20 units of exposure. The white spot will now affect 1/5th as many layers as before, or 20 layers. The grey of the card will affect 1/5th of 50, or 10 layers. But as we saw at the start it took 100 units of exposure for the black spot to affect one layer, so now it affects none at all. That means that the area which corresponds to the black spot will be entirely transparent on the film, carrying no image at all. We can see then that if a print were made from this film that the area corresponding to the grey card would print so dark that it would be almost impossible to distinguish it from the black spot. It is plain, therefore, that under-exposure results in loss of detail in the darker portions of the subject.

How to Judge Exposure

We can now clearly understand why exposures must be approximately correct. The next question is, how are we to judge what exposure to give.

Let us state at the outset that the most accurate way to determine exposure is by the use of an exposure meter. Virtually all professional photographers use such a meter, and the great majority of advanced amateur photographers do likewise. There are two main types of meters in general use today. These are known as the photo-electric type, and the visual extinction type of meter. Recommended photo-electric type meters are the Weston and the Photoscope, each selling at \$22.50. It so happens that this publication comes out at a time when one of the popular extinction type meters has just been offered at a new low price. We refer to the Instoscope meter which used to sell at \$6.00 and is now available at \$2.60. Occupying a field all its own, the very handy and compact little Leudi meter is also recommended. This meter is about the size of a folder of matches and can be conveniently carried in the vest pocket. It is illustrated on another page, and is priced at \$2.15, with case.

The reader is cautioned against the idea that the mere purchase of an exposure meter instantly solves all exposure problems. He must learn to use the meter correctly, for unless that is done his results will probably be worse than before. Read the instruction sheet very carefully and if any point is not fully understood, go to your dealer and get further explanation. The writer is aware, however, that many of his readers will not have exposure meters, and consequently it is essential to supply an exposure guide that does not require the help of a meter. If the instructions given below are carefully followed there is no reason why the reader should not get satisfactorily uniform exposures.

These exposure recommendations are based upon a classification of the subjects which the amateur is likely to take into exposure groups. The essential thing to understand is just why a particular subject is placed in one group or the other. Once you have the reasons for that clearly in mind you will be able to recognize in which exposure group the subject you are taking should be placed.

We assume at the outset that all pictures are taken on a day when the sky is clear and the sun bright. Later we will point out how much additional exposure to give on days when the sun is not bright.

Assuming, then, that the sun is bright, the following additional factors affect the amount of exposure that must be given:

1. The tone of the subject. Whether it is a dark house or a white house, for example.
2. The reflecting power of the surroundings. Water and the white sand of a beach will reflect much more light than green grass or trees.
3. The distance of the subject from the camera. The farther away it is the less the exposure required. This point often puzzles the beginner, because it seems to be the exact reverse of what it should be. To clear that up keep this point in mind. It is not actually the distance of the subject from the camera that is the determining factor, but the distance of the lens from the film. When we focus on a distant subject our lens is moved back close to the film, and consequently the light has only a short distance to travel after passing the lens. When we focus on a near object our lens must be moved outward away from the film, so the light has to travel farther after passing the lens. That is the reason that more exposure is required for subjects close to the camera than for subjects far away.
4. The fourth factor affecting exposure is whether we are photographing the brightly illuminated side of our subjects or point the camera slightly toward the sun and photographing the shadow side. In the second case more exposure would be required. Let us now look at the illustrations which are provided as examples of the type of picture falling in each exposure groups. See page 13.

Group 1—Recommended exposure 1/25th second at F:22, or its equivalent.

This group includes marine or beach scenes or distant landscapes without prominent dark objects in the foreground. The important point to keep in mind here is the phrase "without prominent dark objects in the foreground." In other words, to be placed in this classification, your subject should contain material which reflects a lot of light and must contain no objects of importance at all close to the camera. Nos. 1 and 2 are typical examples. No. 3 is included in the group to illustrate a deliberate departure from normal exposure. This subject would require a very long exposure indeed if the photographer desired to get detail in the foreground objects. But since he wanted the sunset-silhouette effect shown he exposed only for the sky, letting everything else go black in the print. Only in such a case could a subject with dark foreground such as this be included in a classification of normal exposures.

Group 2—Recommended exposure 1/25th second at F:16 or its equivalent.

This group includes ordinary landscapes with sky and principal object in foreground and pictures of people on beaches, only when they are in direct sunlight and 10 feet or more from the camera. No. 5 shows a typical landscape. Nos. 4 and 6 illustrate the sort of pictures of people which fall in this classification. Notice that the light must be coming from **behind** the camera and falling directly on the subject.

Group 3—Recommended exposure 1/25th second at F:11, or its equivalent.

This group includes nearby landscapes with little sky, groups, street scenes, portraits in direct sunlight, and pictures of people on beaches photographed from the shadow side with camera at least 10 feet distant. No. 8 serves as a typical example of a nearby landscape, street scene, or group. Notice that the light conditions and the surroundings are virtually the same for No. 7 as for No. 4. But No. 7 is photographed from the shadow side and consequently requires more exposure. No. 9 is a portrait made in direct sunlight but it requires more exposure than No. 6 for example, because the camera is closer.

Group 4—Recommended exposure 1/25th second at F:4, or its equivalent.

This group includes portraits in the open shade, shaded nearby scenes, and pictures of exceptionally dark objects in direct sunlight. The term "open shade" means that the subject is placed in the shade but without there being anything directly overhead such as a dense spreading tree or the roof of a porch. No. 10 is a typical example. Notice the delicacy of the lighting under such conditions and the fact that the subject does not squint because of sunlight striking the eyes. No. 11 shows a shaded nearby scene. No. 12 is an example of an exceptionally dark object in direct sunlight. A black Scotty dog would also fall in this classification. Such a subject requires additional exposure because it reflects very little light. It would be better to have made No. 12 without including the woman, for an exposure that will be sufficient for the donkeys would be too much for the strongly lighted face of the woman. In this case the photographer attempted to expose in between the two with the result that the donkeys are slightly under-exposed and the woman's face a bit over-exposed.

If the reader will study these classifications until they are clearly fixed in his mind he will be able to decide instantly what exposure to give for at least 95 per cent of the pictures he desires to take

Please Note: When the day is cloudy, the recommended exposures should be doubled, and when the day is very dull, four times as much exposure should be given. (See next section on "Setting the Exposure.")

Setting the Exposure

The reader will have noticed that in giving the recommended exposure for each group we stated such and such a shutter speed and stop **or its equivalent**. Obviously we cannot always use a shutter speed of 1/25th second, for if our subject is in motion we would get a blurred picture. Also there are occasions in which it is desirable to use a small stop in order to get depth of focus, and we must then use a slower shutter speed to make up for the light cut off by the smaller stop. What then are the relations between shutter speed and stop?

The effect of changing the shutter speed is quite obvious. If we change from 1/25th to 1/50th our shutter is open for only half as long and consequently we are letting through only half as much light. If we change from 1/100th to 1/25th our shutter is open four times as long and is therefore letting through four times as much light. This same relation can be found for the lens stops (F numbers) as well. The standard F numbers are as follows: F:2.8, F:4, F:5.6, F:8, F:11, F:16, F:22, F:32. As these numbers range from small to large (large to small aperture size in inches) each successive stop lets through half as much light as the one preceding it. That is, F:5.6 lets through one-half as much light as F:4, F:8; one-half as much as F:5.6; F:11 one-half as much as F:8, etc. To recite this in reverse, F:11 lets through twice as much light as F:16; F:8 twice as much as F:11; F:5.6 twice as much as F:8, etc.

Some cameras have F numbers in between those given above. In the table given below we list the relative exposure in the row above the line. The row below the line shows the standard F numbers, each of which pass half as much light as the number preceding it as we read from left to right, and on the bottom row the odd F numbers in their proper position

Relative Exposure Given	128	64	32	16	8	4	2	1
F Values	2.8	4	5.6	8	11	16	22	32
		3.1	4.5	6.3	9	12.6	18	25



From this table you can see that F:2.8 gives 128 times as much exposure as F:32, etc. The figures given in the lower line can be considered to maintain the same relation to each other. That is, F:3.1 allows twice as much exposure as F:4.5, or F:9 allows half as much exposure as F:6.3, etc. They can also be considered as falling in between the standard F numbers given on the row above. Thus if we change from F:5.6 to F:6.3 we reduce our exposure by one quarter instead of one half. If we change from F:11 to F:9 we increase our exposure by one quarter.

With these relations clearly in mind it becomes evident that it is possible to give the same exposure with a whole series of combinations of shutter speed and stop. For example, all of the combinations listed below give exactly the same exposure.

F:5.6 and 1/200 second
 F:8 " 1/100 "
 F:11 " 1/50 "
 F:16 " 1/25 "
 F:32 " 1/12 "

The relation of stop to exposure time is illustrated diagrammatically below. The relative sizes of stops F:4, F:8 and F:16 are shown. The bar just below the F number illustrates the relative exposure times required assuming that 1/100 second would be right for F:4.

With this wide range of choice at our command how should we proceed to make our selection? Our recommendation is this: Observe your subject carefully and decide what shutter speed is necessary to stop any movement that may be present. Set your shutter at that speed and then use the smallest stop (largest F number) that will give sufficient exposure. Remember in applying this rule that movement of the camera must also be considered. Never take pictures at a slower speed than 1/25th second with the camera held in the hand.

The lens apertures on some cameras are marked with numbers preceded by the letters

Outdoor Exposure Table*

For one hour after sunrise and one hour before sunset with Eastman Verichrome or Panatomic, or with Agfa Plenachrome or Fine Grain Plenachrome films	For All Focusing Cameras			For Fixed Focus Folding Cameras		For Box Cameras with Three Stops	For Box Cameras with Two Stops
	Shutter Speed	Stop Openings marked in U. S. System	Stop Openings Marked in f. System	Shutter Speed	Stop		
GROUP 1—Marine and Beach Scenes—Distant Landscapes—Snow without Prominent Dark Objects in Foreground	1/25	U. S. 32	(f.) 22	1/25	3	Snapshot with Smallest Stop	Snapshot with Small Stop
GROUP 2—Ordinary Landscapes with Sky, with Principal Object in the Foreground	1/25	16	16	1/25	2	Snapshot with Middle Stop	Snapshot with Large Stop
GROUP 3—Nearby Landscapes Showing Little or No Sky—Groups, Street Scenes	1/25	8	11	1/25	1	Snapshot with Largest Stop	Snapshot with Large Stop
GROUP 4—Portraits in the Open Shade (not under trees or the roof of a porch)—Shaded Nearby Scenes	1/25	4	7.7 7.9 or 8	1 sec	3	1 second with Smallest Stop	1 second with Small Stop

The table above is for exposures when the sun is shining. When the day is cloudy the exposures should be about twice as long, and when very dull, about four times as long. Steady the camera against the body and hold the breath for the instant, when making snapshots. Rest the camera on a solid support for time exposures.

If Eastman Super Sensitive Panchromatic, or Agfa Superpan is used reduce the exposures given above by one-half stop. For example, if the recommended exposure is 1/25 second at F:8, set the lens aperture half way between F:8 and F:11.

*Acknowledgment is made of the fact that the above table is patterned after that published by the Eastman Kodak Co in the book, "How to Make Good Pictures."



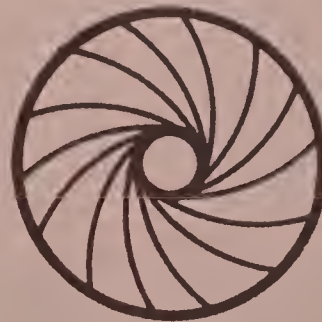
F:4

1/100 sec.



F:8

1/25 sec.



F:16

1/6 sec.

"U. S.". These mean Uniform System. This system of lens marking is seldom used today. There is no need of going into details about this system since it is rapidly going out of use. It is best for those with cameras marked in this system to simply translate the U. S. numbers into F numbers and proceed exactly as if their lens were marked in F numbers. To that end we list the F number equivalents of the U. S. numbers below.

F Numbers	4	5.6	8	11	16	22	32
U. S. Numbers	1	2	4	8	16	32	64

What Film To Use

Perhaps the most important thing for the beginning photographer to understand about film is this. Choose one film of each type that is necessary to the work you are doing and stick to it. One has to get used to using a film in somewhat the same fashion as one gets used to a new pair of shoes—by using them.

For the greatest part of general outdoor work the so-called "Chrome" type of orthochromatic film is by far the best for amateur use. The reason for this is that this type of film has great latitude, which means that the film is capable of reconciling greater inaccuracies of exposure than other kinds of film. Therefore, those who choose to follow the advice of this booklet will use either Eastman Verichrome or Agfa Plenachrome film except for certain kinds of picture-making, which will be noted below.

There are two main types of film in general use today, known as Orthochromatic and Panchromatic. These names refer to the color sensitivity of the films. Panchromatic films are sensitive to all the colors of light in the visible spectrum; Orthochromatic films to all colors except orange and red. This means that Orthochromatic films will photograph orange and red as very dark tones because these colors make little or no impression on the film.

For that reason it is necessary to use Panchromatic films when photographing subjects in which red is an important color. This would be the case in flower photography or in making a portrait of a person with prominent freckles. The freckles, being red, would photograph very dark in tone if an orthochromatic film were used.

This booklet does not cover the subject of making pictures indoors under artificial light, but it should be noted in passing that Panchromatic films should be used for that purpose.

Those who have miniature cameras with picture sizes of $2\frac{1}{4} \times 2\frac{1}{4}$ " or smaller should use films specially made for small cameras. These films are called fine grain films because they are manufactured so that it is possible to make large prints from the small negatives without the grain structure of the negative showing in the print. Furthermore, all users of miniature cameras should specify "Fine Grain Development" when they take their films to the finisher.

Recommended Panchromatic films are Eastman Super Sensitive Panchromatic, and Agfa Superpan. Recommended fine grain films are Agfa Fine Grain Plenachrome or Eastman Panatomic.

When To Use Filters

It is our belief that the beginning photographer only becomes confused if he attempts to absorb too much photographic theory at first. For that reason we have simply recommended the films which we think are best for amateur use, without giving much in the way of reasons for the choice and without attempting to describe or explain the characteristics of the various kinds of films which are available. We ask the reader to accept these recommendations on faith, setting aside his curiosity regarding the why and wherefore until he has obtained the photographic experience that will make for a better understanding. We propose to treat the subject of filters in the same way, by simply stating dogmatically what to use and when to use it and letting the explanation wait.

A filter is a piece of colored glass, or colored gelatin between glass, that is placed in front of the lens. The filter is used to control the relative amount of exposure which the film will receive from light of various colors. For example, suppose we are photographing a sky with white clouds. Our films are almost equally sensitive to blue and white so the blue sky will have just as much exposure effect on the film as the white clouds. When this happens the blue sky and the white clouds will have the same tone in the final print, with the result that the clouds will not show up in the picture. If we place a yellow filter over the lens this will stop some of the blue light from the sky but will let all of the white light from the clouds pass through. Then our



Action in Waikiki Surf

Pan American Press

film will receive more exposure for the white clouds than it gets for the blue sky. Consequently, when the print is made the clouds will appear lighter than the blue sky and will show clearly in the picture.

Go to your dealer and ask for a K-2 filter or its equivalent. K-2 is the Eastman designation for the yellow filter of the density we recommend. Other manufacturers have other names for the same thing. Be sure that the filter has a "factor" of 4 for Verichrome or Plenachrome film. As we have seen above, the filter stops some of the light which would otherwise reach our film. We must therefore allow additional exposure to make up for the light which is stopped. The number of times we must multiply the exposure we would give without the filter, in order to arrive at the exposure that must be given with the filter, is known as the filter factor. Remember, then, that whenever this filter is used with Verichrome or Plenachrome film you must give 4 times as much exposure as you would give without the filter. When using the filter with the two panchromatic films recommended give 2 times the exposure. With Eastman Panatomic give 2 times the exposure. With Agfa Fine Grain Plenachrome give 4 times the exposure. Use the filter on all landscape pictures, especially when the sky is included and for all pictures made around beaches or lakes. Forget about it the rest of the time.

Orthochromatic Film
No Filter

Orthochromatic Film
with K-2 Filter

Panchromatic Film
No Filter

Panchromatic Film
with K-2 Filter





Wolf-Black Star

It is not always necessary to include the whole of a figure in a picture. Close-ups such as this give the observer the impression that he is getting a more intimate view of the proceedings.

How To Recognize Your Failures

The amateur photographer who wants to improve his pictures can help himself a great deal by studying every picture he makes carefully and critically, and deciding how that picture might be improved. At the very least he should make sure that he fully understands the cause of every failure. If you know why things went wrong you are not likely to repeat that mistake in the future. To that end we present on this page examples of common mistakes. No. 1 shows the result of under-exposure. Notice how dull and lifeless the picture is, and observe that no detail is visible in any of the dark portions of the picture. No. 2 shows a print from an over-exposed negative. In this case detail shows very well in the dark parts of the picture but is missing in the light portions. It is easier to recognize incorrect exposure by looking at the film rather than the print. An under-exposed film will have very few dark parts and those parts which correspond to dark parts in the print will be almost wholly transparent. An over-exposed film will be very dark all over and will have to be held against a strong light to see through it.

Subject movement shown in No. 3 can be distinguished from camera movement shown in No. 4, for when the camera is moved every part of the picture will be blurred. When the subject moves, only the part that moves will be blurred. Notice that only the head is blurred in No. 3, the shoulders being perfectly clear.

No. 5 shows the result of tipping the camera horizontally. When the camera is tipped vertically, that is, pointed upward or downward, the result is not so noticeable unless there are long vertical lines in the picture, No. 6. If there are, the vertical lines will incline toward each other. Consequently, if you are taking a picture of a tall building and want the vertical lines to remain parallel as they are in reality, you must not tip the camera upward in order to get the whole of the building in the picture. Move back to a greater distance so that all of the building will be included without tipping the camera.

If the finger or other object is accidentally placed in front of the lens the result will be like that in No. 7. No. 8 shows how such a mistake is often made.

If you obtain a series of pictures that are slightly out-of-focus as are Nos. 9 and 10, it probably means that your judgment of distance is faulty. Examine your prints carefully to see whether you are consistently focusing too close or too far away. If there is a plane in back of your subject which is sharp, as is the foliage in No. 9, you are over-estimating distances. If some point in front of your subject is sharp as is the concrete step in No. 10, you have set your camera for too short a focus.

If you forget to wind the film forward between exposures a double exposure will result. This mistake is easy to recognize since there are then two pictures on the same film, one on top of the other, as in No. 11.

If your pictures are dull and slightly fuzzy it is probably due to a dirty lens. Blow the breath gently on the lens and then wipe gently with a clean linen handkerchief, or a piece of lens tissue, which can be obtained from any store or optical house. Do not use solvents of any kind to clean a lens, for if any of the solvent gets in between the lens elements it may do serious damage.



Pictures of People

Lighting

The angle from which sunlight falls on the faces of our subjects is extremely important in determining whether or not we will get a pleasing likeness. The pictures on this page are all of the same girl and yet it is easy to see that Figures 2, 4 and 5 present the young lady to much better advantage than does Fig. 1 for example. If light falls on a rounded surface such as a face from directly in front, all parts of the object receive equal illumination and are equally bright to the photographic film. A face photographed under such a light looks flat and uninteresting because there is no variation of light and shade to reveal the roundness and structure of the surfaces. Fig. 1 shows the results obtained under such a light and the diagram shows the relative positions of sun, subject and camera. Notice also that the subject cannot avoid squinting, for the light is shining directly in the eyes. To avoid squinting and to get a good likeness by having a pleasing gradation of light and shade on the face, we can turn our subjects away from the sun so that the light is coming from one side or from slightly behind the subject. With such an arrangement, we obtain an effect like that in Fig. 2. By turning the subject a little more (we must move our camera as well, of course) we get the effect shown in Fig. 5, which is called back-lighting.

By being careful to turn the head exactly enough so that the light strikes just at the profile of the face we obtain the very pleasing line of light, outlining the profile. Nothing very difficult about that, is there? Just follow the diagrams and observe the two precautions which follow. 1. Be careful to prevent direct light from the sun striking the lens, by shading it with your free hand. 2. When using back or side light give from two to three times as much exposure as would be given for the same set-up with light from the front. Fig. 3 shows what happens if extra exposure is **not** given. Pleasant and very delicate effects can be obtained by placing the subject in the shade of a rock, tree, or building (Fig. 4). In this case give four times as much exposure as would be allowed for the same subject in bright sunlight.

Back and side lightings such as are shown in Figures 2 and 5 cannot be obtained in the middle of the day, for the sun is then too high in the sky

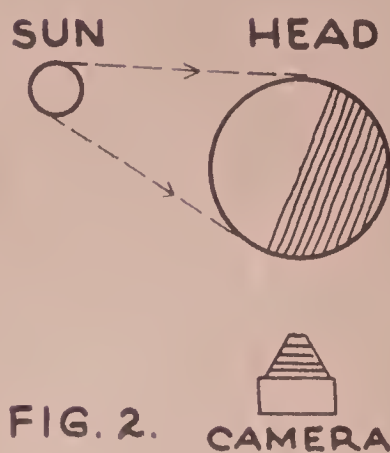
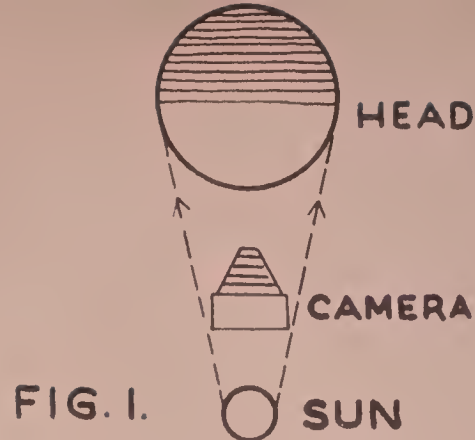


FIG. 3.

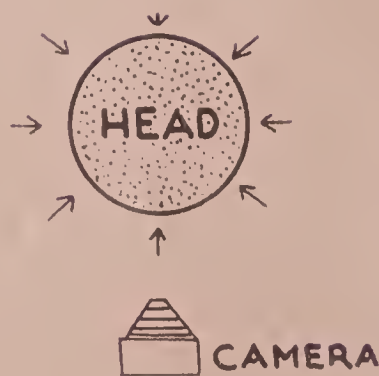


FIG. 4.

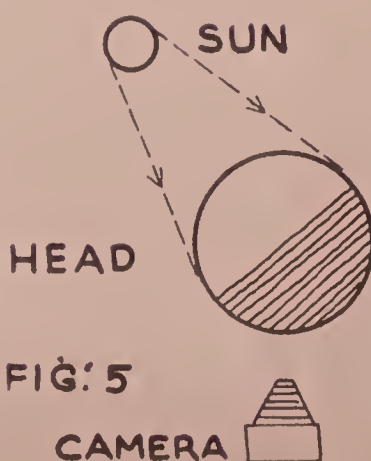


FIG. 5.





Wolff-Black Star



Pictures of . . .

Backgrounds

No doubt backgrounds will seem to be a very unimportant part of picture making to many a reader of this book. At first thought, they do appear to be a minor detail. The truth, however, is that more amateur informal portraits are spoiled by faulty backgrounds than by any other single mistake which might be made. The writer has acted as a judge at several snapshot contests and in each case was impressed with the fact that the great majority of the portraits submitted suffered because of bad backgrounds.

In using the word portrait we mean any picture in which a human being is the principal object, not just close up views of the head. The amateur photographer is likely to overlook a bad background because he does not yet realize that the eye sees things quite differently than the camera lens. What the eye sees is largely controlled by the brain behind it. In other words, the eye sees only that upon which the attention of the mind is fixed. If you hold your finger a foot in front of your face and look intently at it, you are totally unaware of the doorway across the room. By making a mental effort, while still looking at the finger, you can become conscious of the doorway, but under ordinary circumstances the brain completely ignores things at all removed from that which occupies its attention. The lens, however, has no brain behind it, so it sees and records everything for many feet beyond the object on which it is focused. It is up to the photographer, therefore, to act as the brain behind the lens—that is his function. Unless he removes his attention from the object he is photographing and carefully looks for unwanted spots or lines in his background, he is likely to realize their presence for the first time when he looks at his print.

Observe the three lower pictures to the left. The top one of the three has two glaring background faults. One branch of the tree in the background appears to be growing out of the young man's head, and the horizon line is seen to be gently resting upon that same head. The lower picture shows a background that, while not ideal, might still get by if the three ladies and a baby carriage had not stationed themselves there to watch the proceedings. Unrelated figures such as these are always most distracting. The center picture shows a background somewhat better than the other two but it is still spotty. It takes our attention away from the figure and that should never be allowed.

So look very carefully at your backgrounds. Select one that will photograph as a fairly even tone without spots or lines, and keep a weather eye peeled for onlookers who stroll casually into the picture.

The sky makes a splendid background, as is shown by the picture at the top of this page. A smooth hill, a uniform expanse of foliage, a large even-toned rock, the side of a building, all offer opportunities for simple backgrounds. Do not place your subject too close to the background. Keep it five or six feet away at least, and use a large stop (small F number) in order to keep the depth of focus as shallow as possible. That will help to smooth out the background by throwing it somewhat out of focus

... People

Posing and Expression

Posing and Expression are treated together in this discussion because the two are so closely related. In a very real sense obtaining a successful expression on a subject's face depends upon the skill of the photographer in posing his subject in a natural manner, and with a minimum of fuss, so that he or she feels at ease before the camera. He who makes a great to-do over the taking of a picture is simply defeating his own ends.

Before you even broach the subject of making a picture select the background carefully so that you will not have to pick up and move to a new location because of some defect which shows up just as the picture is about to be snapped.

Before placing your subject have clearly in mind just the sort of pose you want to get. Consider the direction of the lighting and plan the pose and select the background so that the lighting will be readily obtained.

Have your camera in approximate focus, know about where you intend to place it, and decide on the exposure. Then call to your subject and say "Please stand in here about like this, and look off in that direction." If you have done a little practicing so as to be thoroughly familiar with your camera the picture will be taken before your subject has had a chance to become self-conscious. Strive always to suggest a pose that the individual would naturally assume in the surroundings in which he or she is placed. Often it is best to simply indicate the place you wish the subject to stand or sit, and let them fall into the pose which is natural to them. Almost any pose which is really natural will be graceful and pleasing.

It often helps to achieve a natural pose if the photographer gives his subject something to do, even if it only be some object to hold in the hands and look at. If this is done be careful to see that the action taking place will not be concealed from the camera. That, of course, would make the picture quite aggravating to look at for the observer would not be able to tell what was going on. The picture in the lower right is a rather extreme example of concealed action. Examples of what is meant by camera consciousness may be found in the second picture from the top at the right and in the two lower pictures on the facing page. In the first example, camera consciousness is suggested by the expression. In the other two, the pose is most responsible for causing that impression.

Regardless of whether or not your camera has focusing adjustments which permit it, do not move too close to your subject even though you plan your finished picture as a large head such as is shown in the third picture from the top at the right. If the camera is used too close, distortion of the features results. In the picture just mentioned, the nose is shown too large in proportion to the rest of the face. Notice also that if the camera is used very close the depth of focus is very slight so that definition falls off much too rapidly. The ears in this picture are quite fuzzy for that reason. How close it is safe to use the camera depends on a number of factors so we can only lay down an approximate rule to follow. Providing the focusing adjustments of your camera permit it, you can go close enough to a portrait subject to fill your picture space with head and shoulders only, if the focal length of your lens is equal to, or greater than, the sum of one short side and one long side of the film. If the focal length is less than the sum of the two adjacent sides, stay far enough back so that about two-thirds of the standing figure is included. After the film is processed you can have an enlarged print made from just the portion of the film you want to show in the picture as is explained under the heading Making the Most of Your Pictures.





The Portrait Attachment

The portrait attachment is what is known as a supplementary lens. It is slipped over the front of your camera lens and makes it possible to then use the camera closer to the subject than is otherwise permissible. It is used for making portraits or for taking pictures of small objects, in order to get a large size image on the film.

The results obtained by using the portrait attachment are clearly shown by the three pictures at the left. The top picture was taken at a distance of ten feet with an ordinary box camera. Notice the size of the image. The box camera was then moved to a position $3\frac{1}{2}$ feet from the subject and the center picture was made **without the portrait attachment**. Notice that the center picture is out of focus.

The portrait attachment was then put in place over the lens and the lower picture was made. Notice that this third picture is perfectly sharp. We can see, therefore, that the portrait attachment permits us to obtain larger images on our film because with the attachment in place we can move our camera closer to the subject.

Box cameras must be placed exactly $3\frac{1}{2}$ feet from the subject when the portrait attachment is used. With focusing cameras the distance varies depending upon the distance at which the focusing scale of the camera is set. A table giving the proper distances accompanies each attachment.

No additional exposure need be given because of the fact that the camera is used closer to the subject. Give the same exposure as would be given if the camera were placed at the distance for which it is set on the focusing scale. With box cameras give the same exposure as would be given with the camera placed at ten feet.

When using the portrait attachment great care must be taken to place the camera at exactly the distance stated in the table. Do not guess at the distance but measure it with a yardstick or tape measure. For portraits measure the distance from the eyes of the subject to the lens of the camera.

The view finder on your camera will not center the picture properly on the film when the portrait attachment is used, since it is constructed for use only with the regular camera lens. You must center your picture by sighting along the top of the camera. By sighting along one top edge and then the other, you can tell if the camera is centered with respect to left and right. If the camera is placed level and at the same height as the eyes, that will center the picture vertically





By Ewing Galloway, N.Y.

The back-lighting in this case helps to minimize the interest in the face of the child and to concentrate attention on the amusing gestures. Lighting can often be used to direct the attention where it is most desired.



Groups

For the most part the problems of group photography are similar to those described for portraiture, only in this case you are striving to make portraits of several people at once. It is just as important to carefully select a simple background, to plan the arrangement of the group ahead, to make sure that your light will be coming from a satisfactory angle, and to have your camera ready, with groups as it is with individuals. If anything it is more so since groups are, in the nature of things, more difficult to handle. In general it is advisable to plan to use an ordinary 45° front lighting. That is the sort of lighting which was used for the illustrations on this page. With such a lighting the light is coming over the photographer's shoulder (that is, from behind the camera) at an angle of about 45°. It is possible to use side and back lightings as described under Portrait Lighting with a group of two or three. However, it is difficult to use such lightings with large groups because the figures behind are likely to cut off the light from the figures in front.

The arrangement of the group is of first importance. Try to work out an arrangement that does not look too mechanical but will at the same time not look too confused. By confused we mean avoid having the heads placed indiscriminately here and there in the picture so that they have no relation to each other. That is what usually results when the photographer snaps an unposed picture of a group. There may be two or three in a close bunch in one part of the picture space, a rather lonely looking fellow off by himself in another part and perhaps a third sub-group spotted in somewhere else. Such a picture instantly discloses the fact that it has been carelessly made.

No. 1 illustrates an arrangement that is too mechanical. The heads are almost all in a straight line, the only variation arising from the different heights of the individuals.

A much better grouping is shown in No. 2. Notice how much the picture is improved by simply moving the two girls slightly forward and the two men on the outsides toward the center. Such a group has the further advantage of being more compact, so the camera does not need to be so far away to include all of the group.

Nos. 1 and 2, however, do reveal the fact, rather noticeably, that a picture is being taken. That is not necessarily a disadvantage for this is the sort of arrangement that shows each face most fully. If, however, you would prefer a more natural-appearing picture, with less camera consciousness, try giving your group something to do. Number 3 illustrates how this can be done. Simply give them something besides the camera to look at.

It is generally best to avoid having part of a group in the shade and part in a strong light. There is always the temptation to under-expose in such cases for the inexperienced photographer is likely to forget about the fellow in the shade. Even with full exposure the face in the shade is bound to print much darker than those in the bright light, and consequently it will not show up as clearly as the others. No. 4 shows what happens. Notice that the man furthest to the left in the picture is pretty well lost in the shade. No. 4 is by no means an extreme example, for it is evident that this picture was made under conditions where quite a lot of light was getting into the shaded portion of the scene, and it has been properly exposed. In places with deep shade and bright spots of sunlight striking through, the contrast would be very much greater. Such conditions should be avoided entirely: If one is careful to expose for the shaded figure a picture such as the one shown can have a most attractive quality.

No. 5 shows the result of moving the group out into the sunlight.



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By pointing his camera upward the photographer emphasizes the idea that these hikers are negotiating a steep and difficult climb.



By Ewing Galloway, N.Y.

This is an example of what is meant by catching an action subject at the peak of the movement. You can get sharper pictures by tripping your shutter at the instant when upward movement has stopped and downward movement not yet begun.

Action



At first glance action pictures may seem beyond the scope of those whose cameras do not have fast shutter speeds. However, it is very important to be able to judge what shutter speed will stop any particular movement, for unless that is known the photographer has no means of judging whether his shutter is fast enough for the making of a certain picture or not. So let us first consider the factors that determine what shutter speed is required. These are three in number.

1. Speed at which subject is moving.
2. Direction of the movement.
3. Distance of subject from camera.

It is quite obvious that the faster the subject is moving the shorter will be the exposure required to stop that motion on the film, but the other two factors mentioned will require a little elucidation.

The influence of the direction of movement is illustrated in Nos. 1, 2, and 3 at the left. Each of these was exposed at $1/100$ second at a distance of 25 feet. In No. 1 the direction of movement is directly toward the camera and it is plain that the movement has been practically stopped in spite of the fact that the boy is running at full speed. In No. 2 the movement is on a diagonal to the camera. The shutter speed was not fast enough to stop this movement as can be plainly seen by the fuzziness of the picture. In No. 3, with movement at right angles to the camera, the fuzziness is even more pronounced. We can see then that movements at right angles to the camera require the fastest shutter speeds to stop motion. That much slower shutter speeds can be used if the movement is toward or away from the camera. That movements on a diagonal to the camera require intermediate shutter speeds.

We have seen that $1/100$ second was sufficient to stop the runner moving directly toward the camera, but insufficient to stop the same movement at a diagonal or at right angles. What shutter speeds would be necessary to stop such movements? A whole series of photographs were made of this subject. Exposures ranging from $1/100$ second to $1/1000$ second were made for each direction of movement. These were then laid out in three rows with all the toward-the-camera movements in one row and with the slowest exposure on the left and the fastest exposure on the right and with the same arrangement for the other two movements.

It was then a simple matter to inspect these prints and pick out the slowest shutter speed that would stop the diagonal movement and the slowest shutter speed that would stop the right angle movement. These two are shown in Nos. 4 and 5. It was found that $1/500$ second was required to stop the diagonal movement and $1/1000$ second for the right angle movement. If we were photographing an object moving at only half the speed of a rapidly running boy we could then use shutter speeds one-half as fast as those which were required for the present test, and if our subject were moving at twice the speed of the present example we would need to expose at twice the speeds which were found correct in the present test.

This test therefore shows what speeds are required for the three types of movement photographed at 25 feet. The test is made with a

Pictures

subject which moves at a speed with which all are familiar so it serves as a good basis for judging what speeds would be required for other subjects. As we have already stated, the distance of the subject from the camera also affects the shutter speed required to stop motion. The reason for this is not hard to see. What actually causes a blurred image such as we see in No. 3 is movement of the image over the face of the film during the space of time in which the shutter is open. The result of such movement is that the film receives a series of images, each one a little different than the other.

Consequently the slower the image is moving across the face of the film the slower the shutter speed required to stop motion. We know that the film receives a smaller image of a subject at a considerable distance from the camera than it does if the subject is near by. It is also self-evident that the smaller the image is on the film, the farther the **actual subject** will have to move to cause any noticeable amount of movement of the image across the face of the film. For that reason we can use slower shutter speeds when our action subjects are farther away. Give half the shutter speeds required for the test when your subject is 50 feet away and one-fourth those speeds if the subject is 100 feet away. Action subjects should rarely be taken at less than 25 feet distant from the camera. But if that should be necessary a shutter speed twice as fast as those for the test would be required if the subject was as close as 15 feet.

It is always desirable to use as slow a shutter speed as is safe, since that permits us to use a smaller stop and get greater depth of focus. If the light is not at its brightest we will need to use the slowest possible shutter speed in order to get enough exposure.

There is one trick that often makes it possible to take action pictures in bad light or with shutters that are not really intended for speed work. We do not mean this to imply, however, that action pictures should be attempted with box cameras or with any camera with shutter speeds slower than 1/100 second. To make such an attempt is only inviting disappointment. To get back to our point, a great many kinds of action reach a peak where the movement is almost stopped for an instant. If the photographer can shoot just at that instant he can get away with using a shutter speed about half as fast as would otherwise be required. Nos. 1 and 2 illustrate this point. Both were exposed at 1/100 second. No. 1 is sharp because it is caught just at the peak of the movement. Notice that the chains of the swing are slack. No. 2 is not sharp because it was shot with the swing in full motion. Diving, high jumping, pole vaulting and other forms of action may also be treated in this way.

Most action that is photographed passes a definite point, on which the photographer can focus in advance. When that is not the case, focus at a distance that you think will be right. Keeping that distance in mind you can swing your camera in an arc with your body as a pivot, and shoot at any time that your subject appears to be at the proper distance. (See No. 3.) An eye level view-finder as is illustrated in No. 4 is most convenient for action work.

Remember that you must trip the shutter an instant **before** you see the particular phase of the action that you wish to catch



Scenic Views

The problems involved in making scenic views, or landscapes, if you prefer the more artistic designation, might be summed up by saying: "find a good landscape." That makes things sound delightfully simple, for there really are oodles of lovely landscapes to be found, if we have learned to recognize them when we see them. There lies the catch. We must learn to see them as the camera will record them, not as they look to the eye. On this page we wish to discuss three factors which often combine to waste the photographer's film, by luring him into taking a picture that isn't quite there—photographically speaking.

The first of these is color. A landscape that is a perfect riot of color, and exceedingly beautiful for that reason, will not always make a good photograph. Unless there is also a pleasing arrangement of forms, of lines and masses, with a good strong center of interest, the color will not help much for it will not be present in our print. One of the most helpful faculties which the photographer can develop is the ability to see his subjects in monochrome. That is, see them as they will ultimately appear in the black and white photograph. Those who would like to learn to do this should get themselves a small piece of blue glass (glass manufacturers call it Cobalt blue sheet glass) and look at their subjects with this glass held in front of the eye. They will then see their subjects in monochrome. Incidentally, the blue viewing-glass is also a great help in portraiture. It shows you just how the lighting on the face will appear in the finished picture.

The second misleading factor is that of size. We are often much impressed with the rugged massiveness of a towering mountain peak, but unless such a subject is properly photographed it may look like a pimple in our print. To maintain the impression of great size and height, frame the picture in the finder so that the top of the mountain comes near to the top of the picture. Then try to include some object of known size, such as a small cabin, a few cattle, or one or two human beings. Be careful that none of these are near to the camera, for they may then become more interesting to look at than the mountain. If you use people, take care that they are looking toward the mountain, not toward the camera. And don't hesitate to trim such a picture drastically, as is recommended under the heading, Making the Most of Your Pictures.

The third factor is distance. As you stand at some great height, on top of a mountain or at the edge of a great cliff, the view which spreads out before you is wonderfully impressive. But remember that you are looking at this view in its full size, miles upon miles of it in each direction. Ask yourself, how much of this is going to show when it is reduced to a picture a few square inches in size. In the tremendous reduction which must take place much of the impressive quality of the view is lost, and the photographer is disappointed.

This is not written to say that you should never take distant views. Take them if you wish, of course, but take them with the understanding that they can seldom retain the beauty of the original. Then look about you and pick a small portion of the landscape and use that to make the photographs that you hope will turn out to be pleasing pictures.

If you wish the camera to reach out and record as much distance as possible, use the yellow filter previously recommended. Occasionally one prefers to let the distance melt away into a mysterious haze. In that case make the picture without the filter.





P. Douglas Anderson, F.R.P.S.

Much of the charm of this picture is due to the fact that it was made with back-lighting on a slightly hazy day. Keep an eye open for opportunities to capture this lovely atmospheric quality.

Composition

To Make Pictures Interesting

We make no attempt to discuss composition in the way that subject is usually treated. Long-winded, abstract explanations are bound to be confusing to the beginner in any field, for he hasn't the experience that must serve as a basis for understanding. Instead we present a few **definite** things that should be done, a few **definite** things that should not be done. If these points are understood and followed, we are willing to bet that the great majority of your compositions will be quite satisfactory.

The most common mistake which beginners make is to include too much in their pictures. No. 1 is a typical example. Notice that there are really two pictures here, one competing with the other. The man and the swan constitute one picture, the roadway another. We cannot have both, for the roadway leads the eye **away** from the principal objects. Notice how much more satisfactory No. 2 is. Here we can really see the action, because it is revealed in larger size and the distraction of the road leading the eye away has been removed. Both these pictures are from the same film. See the section on Making the Most of Your Pictures for further discussion of these same two prints. **Every picture, regardless of**

its subject matter, must have a center of interest. The center of interest must be the dominant object in the picture. If it isn't it just can't be a center of interest, for that's what the term means—the dominant object.

Usually the center of interest is a single object, such as the portals in No. 4 or the barn in No. 6, but occasionally it may be made up of more than one object, as is the case in No. 2, **provided they are tied together in some manner.** In No. 2 the two objects are tied together by the gesture which the man is making toward the swan. If he was not making that gesture and was not looking toward the swan, the picture would be absolutely spoiled, because it would then have two objects competing for the center of interest.

The gentleman who likes to ask embarrassing questions will at this point say: "Where is the center of interest in group pictures?" Turn to the group pictures on page 24. No. 1 certainly has no center of interest, which simply adds one more reason for our presenting it as a horrible example. But in No. 2 there is the suggestion of a center of interest. The two girls are given the break in this case and presented with slightly more emphasis than is accorded the men. But look at No. 3. No trouble locating the center of interest there. It is the camera, of course, the point to which all attention is directed.

The main lines in a picture should lead to the center of interest. Observe No. 6. The line of the gully running diagonally downward from the upper right, the line of the fence, and the suggestion of line formed by the succession of trees in the lower left, all lead the eye to the barn. The only line in the picture which does not lead to the barn is the horizon line. Incidentally, you may be interested to know that when the famous photographer who made this picture makes a print for exhibition purposes he trims it down from the top until the horizon line is eliminated. In that form it has been hung in most of the leading exhibitions of the world. Avoid having the light come from directly behind the camera when making landscape pictures. In fact, such a light almost always presents the most uninteresting aspect of any subject, because there are then no shadows to give variety to the picture. Notice how flat and uninteresting is No. 5, compared to No. 6.

A landscape picture is often made more interesting by including a figure, or some grazing cattle, **appropriately placed**. Too much emphasis cannot be put on the term appropriately placed, for a poorly placed figure will ruin the best landscape. Ask yourself just before shooting, "what **kind** of a picture am I making?" Is it a landscape or a portrait? It can **never be both**. Is No. 1 a landscape or a portrait? Quite obviously it is a little of each. The figure looking toward the camera suggests a portrait, but the importance of the background suggests a landscape. Consequently it is neither fish, flesh, nor fowl, and is thoroughly unsatisfactory. If you are making a landscape never pose a figure so that it is looking at the camera. Always have the figure look into the picture, as is being done in No. 4.

The reasons why it is a mistake to place a figure close to the side toward which it is looking, are given under the head of Spacing The Portrait. One look at No. 2 will probably convince the reader that no reasons are necessary. It just looks all wrong.

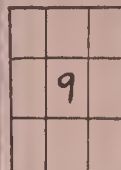
The center of the picture is seldom a good place for a figure. The eye gets the impression that it has to go around the figure to get into the picture, and a figure so placed is apt to be unduly assertive. No. 3 illustrates the point.

Keep your horizons away from the center of the picture. Any too obviously equal proportioning is usually to be avoided. When the horizon line is exactly in the center as in No. 5, the picture appears to be divided into two equal halves. That is an uninteresting sort of an arrangement. A better position for the horizon line is at about two-thirds the height of the print. If the principal interest in your picture is a beautiful cloud formation it is perfectly permissible to place the horizon about one-third the height of the print from the bottom, thus allowing more of the picture space for the sky.

When taking pictures of winding roads or streams, get as much elevation for the camera as possible. If the camera position is too low the road broadens out too much in the foreground. Notice how disturbing this is in No. 7, and how it has been corrected by using a higher camera position in No. 8. A low camera position will also place objects in the foreground higher up in the picture space. Observe that the fence post farthest from the camera is above the mountain ridge in No. 7 but below it in No. 8. Notice also that because of this the mountain appears much lower and less impressive in No. 7 than in No. 8.

There will be times, of course, when you will want to emphasize objects in the foreground. In such cases the low camera position is desirable.

Where should we place the center of interest? Keeping in mind what has been said before, look at the little diagram marked No. 9. Notice that it has been divided into thirds in both dimensions. In general, try to place the center of interest at one of the four points at which the lines inside the rectangle, which represent your picture space, intersect. Go through the pictures in this book looking for centers of interest (skipping those purposely made wrong for illustration purposes) and notice that almost invariably the center of interest will be found at one of these four points. In portraits consider the eyes as the center of interest. It is in such a position in No. 4 for example





Spacing the Portrait

Have you ever noticed what your eye does when you look at a picture with a winding road running through it? Have you noticed what it does when it sees a picture with a person shown looking in a certain direction? It does the same thing in both cases. It follows along the winding road, or it follows the direction in which the person is looking. Artists say that the eye "moves" through the picture as the principal lines direct it to, or as the direction of a gaze directs it to. Artists also say that such lines (or such imaginary lines as are established by the direction of a gaze) set up movements in the picture. In saying this they mean that the eye is persuaded to move through the picture in a certain path. The thing which the artist must guard against is that these movements do not carry the eye out of the picture. When that happens the picture is bound to be annoying to look at. One way in which the artist controls the force of the movement in his picture is by spacing. By allowing space on the side toward which the movement is directed he cushions the force of the movement.

There is no such movement in a portrait when the subject is looking directly at the camera, but if the eyes are turned to either side, there is the suggestion of movement toward the side to which the eyes are turned. To control that movement we must allow more

space on the side to which the face is turned than we allow behind the head.

Nos. 3 and 4 illustrate this condition. No. 3 is unpleasant because the eyes look directly out of the picture, with the result that our eyes slide out also. By allowing space in front of the eyes, as in No. 4, we take care of that condition and the picture appears nicely balanced.

In portraits, the eyes should usually be placed above the center of the picture. If they are below the center, the subject appears crushed down in the picture space. Notice how disturbing this is in No. 1, and how much better the same subject is in No. 2.

Spacing Action Pictures

The need to balance movement in the picture is even greater in action pictures. For then the movement is actually pictured, not only suggested. Notice that in No. 5 one gets the unpleasant feeling that the boy is about to crash head on into the side of the picture. No such suggestion is present in No. 6, which is properly spaced.



Another Example of Action Caught at the Peak of the Movement

By Ewing Galloway, N.Y.



By Ewing Galloway, N.Y.

This Scotty's very black coat reflects little light. Therefore it will take twice as much exposure to get a picture of him as would be required for a dog or cat with a light colored coat.



P. Douglas Anderson, F.R.P.S.

Here is one way of persuading a dog to hold still for his picture. When you include people in your pictures of animals try to get both animal and person looking in the same direction. This gives the impression that the attention of both is directed to the same thing, and adds unity to the picture.

Animals

There is perhaps no field in which the camera is better fitted to do a superlatively fine job than in the picturing of animals. And this is an extremely pleasant field in which to work. There is enough variety of subject matter to keep any photographer busy for a lifetime. One doesn't have to worry his head about camera consciousness in his subject, or wonder whether or not he is going to be able to get a "natural" expression. Whatever expression your animal subject may wear, and they are infinite in number, it will surely be natural. There is the further satisfaction of knowing that good animal pictures are bound to be appreciated. Almost everyone is interested in animals of all kinds and consequently takes delight in seeing good pictures of them.

The most accessible animals are, of course, the ordinary household pets—dogs and cats. Both make excellent subjects. Perhaps the most difficult problem is that of focusing. Our subjects are apt to be a bit restless and may fail to appreciate the necessity of holding still for the camera. It is therefore wise to use a fairly fast shutter speed. 1/100 second or 1/200 second are recommended. Faster speeds are rarely necessary and are in fact to be avoided because we also want to use as small a stop as possible in order to get maximum depth of focus. The more depth of focus we have the less chance there is of the subject moving out of the area of sharp focus.

Get your subject in a good outdoor light. One which comes over either of the photographer's shoulders at about a 45° angle is best. Don't try to work too close. That will only make it more difficult to maintain focus. Be satisfied with a smaller image on the film. You can always enlarge the part that is wanted later. See section on Making the Most of Your Pictures.

Be sure and select a simple background. This is really a portrait that you are making and you don't want your best shot spoiled because of some ugly projection in the background. If your subject simply refuses to stand still, try putting him on a table that has been covered with a blanket of even tone. Or if you like you can always try the old dodge of putting him, or them as the case may be, in a box or basket and making your shot as he tries to climb out. This is always a good dodge with puppies or kittens.

Don't use too high a camera position. Treat your animal subjects as you would if making a portrait of a human being. Looking down on them from above results in foreshortening of the body, and seldom works to advantage. It is usually best to set your camera almost on a level with the animal's head.

It is not at all difficult to get pictures of the semi-tame animals which are found around most vacation spots. Squirrels, chipmunks, bluejays, etc., make excellent subjects and you gain additional prestige by becoming a photographer of wild animals. Select a sunny spot and toss a few bread crumbs there. Focus your camera carefully and wait. When the victim comes along and picks up his free meal—click, and you got 'im.

Some very amusing animal subjects can be found in zoos, and the enthusiastic animal photographer should not fail to take advantage of the opportunities offered. There are dozens of subjects that are good for a hearty laugh. The fellow in the lower left serves as an example.





National Graflexed by Major A. W. Stevens

Here is a successful exception to the rule stated on page 37. The picture is given a humorous twist because the dog is so blithely ignoring the attempt of the little girl to direct his attention elsewhere. This composition would not be satisfactory, however, if we could see what the young lady is pointing to. Our eye would then jump over to that object and our attention would be divided between two points of interest

Such a situation is to be avoided



Camp Fire Pictures

No self-respecting photographer would dream of coming back from a camping trip without one or two shots made around the camp fire. There is nothing at all difficult about the making of such pictures. Proceed as follows. Set the camera on a tripod, or some firm support so that it will be sure to remain steady during the long exposure required. Arrange your subjects so that they are as close to the fire as they can be and still remain comfortable. This is done so that as much light from the fire as possible will reach each subject. Direct them to look at the fire rather than at the camera, for if the faces are turned away from the fire they will not be illuminated. The amount of exposure required will depend upon how large and brilliant the camp fire is. The center picture on this page required an exposure of 3 seconds at F:8, using Agfa Superpan film. By the way, be sure to use panchromatic film. The light from the fire is made up largely of red, and as you recall, orthochromatic films are not sensitive to red. Caution your subjects to remain still until they hear the second click of the shutter. Set your shutter on time. Press it once to open the shutter and a second time to close it. Give an exposure of from 3 to 5 seconds, using the setup shown in the center picture as a guide. However, as will be observed, a camp fire picture made in this manner is not entirely satisfactory. There is not enough detail shown in the figures.



Greatly improved pictures, such as that shown in the lower photograph, can be obtained by using photoflash bulbs. The top illustration shows the manner in which the photoflash equipment is used. It is extremely easy to operate and is perfectly safe. Photoflash lamps provide a single, intense flash of light when an electric current is passed through them. In the field the current is supplied from a flashlight battery which is located in the handle of the flashlamp. The lamps cannot be used a second time. The flash, which lasts for about 1/50 second, takes place entirely within the bulb without smoke or noise.

Do not attempt to use photoflash bulbs without a reflector behind them. (See top illustration.) Without a reflector only about one-fourth of the light will reach your subject. For average picture-making at night at distances of not more than 12 feet we recommend the No. 20 photoflash bulb which sells for 25 cents. To make an exposure by photoflash, get the camera set up, your subjects in place, your focus carefully checked. Set the shutter on time, open it, fire the flash and close the shutter immediately. Although your shutter has been open for about a second or two the exposure is really made at 1/50 second, the duration of the flash, since there is no other light that is strong enough to affect the film. For exposures out of doors with Panchromatic film, and the No. 20 bulb, set your lens aperture as follows. With the camera 6 feet from subject, use stop F 11 at 8 feet F 8 at 12 feet F 6.3

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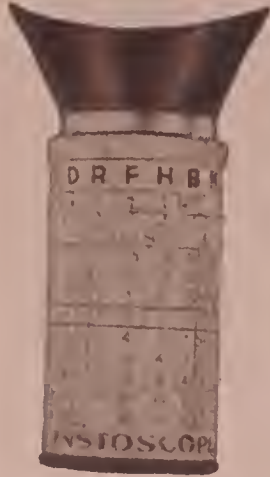
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Flowers

Flower pictures are, of course, made in the same way as are any other photographs, but more careful attention must be given to certain aspects of the work. On this page we call attention to those points.

1. **Equipment.** The loveliest flower photographs are almost invariably close-ups, showing only a few blossoms, but revealing the structure and detail most minutely. Such pictures are extremely fascinating for they reveal to our eyes the marvelously delicate construction of the blossoms, something most of us will never have seen before. Look at the top picture to the left and notice how unsatisfactory it is. Just a confusing mass of blossoms. Then look at the picture just below. Now we can really **see** something. This is the sort of picture that we advise those interested in this field to work for. If you are at all successful we can guarantee that your pictures will be enjoyed by everyone who sees them. In order to make such close-ups the camera must be constructed to focus at short distances, and it helps if you have a lens that will work at a very small stop, such as F:64, to get maximum depth of focus. The portrait attachment can be used with cameras of limited focus (see page 22).

2. **Arrangement.** The flower photographer is faced with special problems of arranging his subject so that it may be photographed successfully. Blossoms are often mixed up with a mass of foliage so that if they are photographed just as they are the background of the picture would be a terrifying conglomeration of dark and light spots, among which the blossoms we wish to show would be lost. One way of avoiding this is shown in the third picture from the top. Slip a piece of grey card just behind the blossom and let that act as your background. If the blossom is quite light in tone use a medium dark shade of grey. If it is dark in color use a light shade of grey, so that the blossom will be clearly distinguished from the background. Do not, however, place a white blossom against a black background or a dark blossom against a white background, for such extreme contrast is usually disturbing. It is next to impossible to make close-up flower pictures out-of-doors on a windy day. As we have seen, close-up pictures require longer exposures, consequently our subject must be perfectly still or movement will show in the picture. We must either wait for a windless day or pick the blossoms we wish and photograph them indoors by the light from a large window, or outdoors in a spot that is sheltered from the wind. If you are working indoors a window facing north is best and a large white cardboard (3 x 3 ft.) should be placed facing the window and on the opposite side of the flower arrangement so that it will reflect light onto the shadow side of the subject.

3. **Color Rendition.** We must remember that our photographs are in black and white. The only means we have of distinguishing one color from another is by registering them as two different shades of grey on our films. There are, however, certain colors which appear quite distinct to the eye that will register as almost the same shade of grey on our films, unless we do something about it. In flower photography this problem arises for the most part with two main groups.

1. Red and green will photograph close together.
2. Light blue and white will photograph close together.

What to do? First, always use panchromatic film for all flower photographs, since this is the only kind of film that is sensitive to all colors. The second picture from the bottom of this page is of a dark red flower against green leaves. Notice that the two are too close together in tone. The picture just below is of the same blossom, but it was taken with an "A" filter which is red in color. Therefore, to distinguish red from green use the red "A" filter. To distinguish light blue from white use the yellow K-2 filter which has already been recommended for general landscape work. Remember that whenever a filter is used the exposure must be multiplied by the filter factor. See section on When to Use Filters.



By Ewing Galloway, N.Y.

When taking pictures of blossoms against the sky remember to use the yellow filter recommended in the section entitled When to Use Filters. If the filter is not used the tone of the sky will be too light and the blossoms will not show up well against it.



Landau-Black Star

Pictures For Fun

In a very short time the beginner in photography who has started out without misinformation or misconceptions finds that the technical side of photography has become easy for him. He can go forth with his camera and be sure of returning with a high proportion of technically good pictures. But as soon as he reaches that point he finds, often to his surprise, that he wants something more than simply a clear, sharp picture. He wants his pictures to contain that indefinable something that will make them interesting and attractive. There is nothing more precious and satisfying to the amateur photographer than that little gasp of surprise and appreciation which his friends utter when he shows them a particularly striking picture. That's something to work for! Interesting photographs are purely and simply the product of the photographer's imagination. With practice he develops the ability to recognize the chance for a striking picture and to take instant advantage of that opportunity. It is quite impossible for anyone to tell you how to do this, but we can point out ways in which ordinary picture material may be made more interesting, and give some suggestions as to how to proceed.

For example, pictures can be made under unusual lighting conditions to give a silhouette effect such as is seen in the upper picture at the right, or they can be made very late in the day to get a sunset effect such as is seen in the second picture. Notice how the low angle of light has transformed the surface of the water into a thing of great beauty. Keep two things in mind in making pictures such as these. Be sure that no direct light from the sun strikes your lens. Keep your exposures short so the silhouetted figures will appear strong and dark in the print. These two pictures would not require more than 1/100th second at F:11 or F:16. Unusual camera angles will help a lot. Don't be afraid to point your camera upward or downward if you can obtain an interesting effect by doing so. The third picture from the top and the one at the left give some idea of what can be done. Very interesting pictures can be obtained by showing only a significant part of a whole scene. Pick out the part that really tells the story as has been done in the picture at the lower right. One final suggestion. Take pictures of your friends when they don't expect it. Very interesting expressions can be obtained in this way. It is easy to do when the subject is asleep as is the case below, but by quietly awaiting your chance you can get completely natural unposed pictures even though your subject is wide awake.

By Ewing Galloway, N.Y.



Black Star



Black Star



[45]

Black Star



Black Star



Making the Most of Your Pictures

The photographer has one means at his disposal for improving his pictures tremendously, after they have been taken. We hope that all readers of this book will soon learn to take advantage of this method, for if they do their pictures will be very much better than otherwise. The first principle of all picture making, of all art in any kind, in fact, is simplicity. Simplicity means tell your story as simply and concisely as possible. Never include anything in your pictures that is not essential to their completeness. We cannot always photograph just exactly the part of a scene that we would choose. Often we cannot get close enough to our subjects. Sometimes the best point of view will include some object at one side of the picture that does not belong there at all. Don't let such circumstances prevent you from making the picture. As long as the unwanted object is to one side of your subject you can get rid of it later. Proceed in this manner.

From a light piece of cardboard cut two pieces each shaped like the letter "L." When these are laid with the right angle corners opposite each other we have what amounts to an adjustable frame. If we push the corners toward each other the L's encompass a small area, if we move them apart, a larger one.

When your prints are obtained from the finisher take these L's and lay them over the face of the print in the manner described. Move them in and out so that they cut off more or less of the picture on this side, more or less of the picture on that side, etc. See how much of the print you could trim away and still have all the essentials of your picture. Keep in mind the points we mentioned about spacing the principal object in your picture space. See if you cannot improve that spacing by trimming a little off one side or the other. Quite often you will find that only a very small part of your original picture will be much more satisfactory than the whole thing. It is not necessary to actually cut away parts of your contact print. Observe the three pictures below.

The one at the left is a typical landscape scene with too much included. The action is not clearly shown because it is too far away. The roadway is not properly a part of the picture at all since it leads the eye away from the figure and the swan which are the principal objects.

By laying your L's over the print you find that the most attractive and well composed part of the picture is that shown at the lower right.

Purchase from your photographic dealer a roll of Scotch Masking Tape. Stick strips of this tape over your **film** so that the preferred part of your picture is outlined in the manner shown in the center illustration. Then send this film, with the masking tape in place as shown, to your finisher and have a good size enlargement made. He will understand that the enlargement is to include only those parts inside the square of tape. You will be delighted at the great improvement which the enlarged and trimmed picture will show.

The four pictures at the left show other instances of how trimming and enlarging can improve pictures tremendously. The Scotch Masking Tape will not injure the film in any way and can be easily pulled off, if desired.





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